

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: §
Cecilia BRANDEL, et al. §
§ Art Unit: Not Yet Assigned.
Serial No.: Not assigned §
§
Filing Date: Herewith § Examiner: Not Yet Assigned

For: A METHOD OF ESTIMATING THE PITCH OF A SPEECH SIGNAL USING A
BINARY SIGNAL, USE OF THE METHOD, AND A DEVICE ADAPTED THEREFOR

Commissioner of Patents
Box Patent Application
Washington, D.C. 20231

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<i>Dorothy MacKinnon</i> Signature

Sir:

PRELIMINARY AMENDMENT

Prior to commencing the examination of the above-identified application, please amend the application as set forth below to place the application in condition for allowance.

In the Specification

On page 1 of the Specification, in the Title, please **delete**:

[A METHOD OF ESTIMATING THE PITCH OF A SPEECH SIGNAL USING A
BINARY SIGNAL, USE OF THE METHOD, AND A DEVICE ADAPTED THEREFOR]

and **replace** with the following amended Title:

A METHOD AND DEVICE FOR ESTIMATING THE PITCH OF A SPEECH SIGNAL,
USING A BINARY SIGNAL

On page 1 of the Specification, at line 1, before "**Field of the Invention**," please **add** the following section:

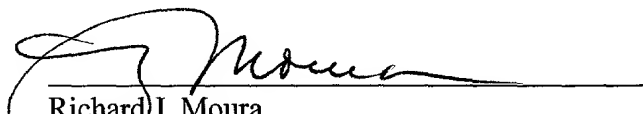
CROSS REFERENCES TO RELATED APPLICATIONS

This application for patent claims the benefit of priority from, and hereby incorporates by reference the entire disclosure of, co-pending U.S. Provisional Application for Patent Serial No. 60/197,044, filed April 14, 2000.

REMARKS

In view of the foregoing amendment, the pending the application is respectfully submitted to be in condition for allowance, and action to that end is respectfully requested. Applicant hereby certifies that this amendment does not add new matter to the patent application.

Respectfully submitted,


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MARKED UP VERSION OF AMENDMENTS

[A METHOD OF ESTIMATING THE PITCH OF A SPEECH SIGNAL USING A BINARY SIGNAL, USE OF THE METHOD, AND A DEVICE ADAPTED THEREFOR]

A METHOD AND DEVICE FOR ESTIMATING THE PITCH OF A SPEECH SIGNAL, USING A BINARY SIGNAL

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Field of the Invention

10 The invention relates to a method and device for estimating the pitch of a speech signal, for example, in telephones.

Background of the Invention

15 In many speech processing systems it is desirable to know the pitch period of the speech. As an example, several speech enhancement algorithms are dependent on having a correct estimate of the pitch period. One field of application where speech processing algorithms are widely used is in mobile telephones.

20 A well known way of estimating the pitch period is to use the autocorrelation function, or a similar conformity function, on the speech signal. An example of such a method is described in the article D.A. Krubsack, R. J. Niederjohn, "An
25 Autocorrelation Pitch Detector and Voicing Decision with Confidence Measures Developed for Noise-Corrupted Speech", IEEE

CLEAN COPY OF AMENDMENTS

A METHOD AND DEVICE FOR ESTIMATING THE PITCH OF A SPEECH
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